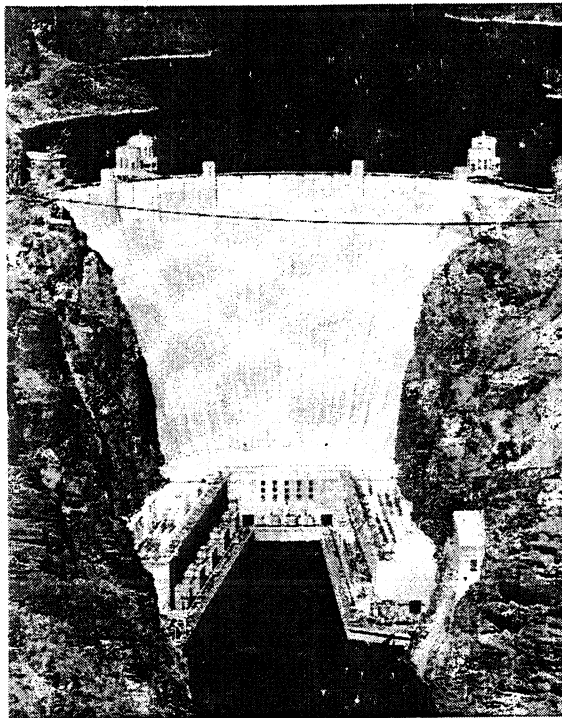


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# Commissioner's Power O&M Team Report

*Achieving a More Effective Power O&M Program*

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**August 1997**

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U.S. Department of the Interior  
Bureau of Reclamation

### **MISSION STATEMENTS**

The Mission of the Department of the Interior is to protect and provide access to our Nation's natural and cultural heritage and honor our trust responsibilities to tribes.

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The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.





# United States Department of the Interior

## BUREAU OF RECLAMATION

Washington, D.C. 20240

IN REPLY REFER TO:

D-5400

PRJ-1.00

AUG 20 1997

### MEMORANDUM

To: Regional Directors, PN, MP, LC, UC, GP  
Attention: PN-1000 (Keys), MP-100 (~~Patterson~~), LC-1000 (Johnson),  
UC-100 (Calhoun), GP-1000 (~~Stessman~~)

From: Eluid L. Martinez  
Commissioner

Subject: Report of the Commissioner's Power O&M Team

On May 24, 1996, I established a Power O&M Team of Reclamation professionals to recommend appropriate actions that would improve our power operation and maintenance program. This team consisted of:

Jack Garner, Area Manager, Eastern Colorado Area Office  
William Hagbery, Chief, Power Operations Division, MP Region  
Bert Milano, Manager, Hydroelectric Research and Technical Services Group  
Michael Roluti, Manager, Power Resources Office

This team was charged with identifying and reinforcing the areas of strength in Reclamation's power O&M program and recommending practices and procedures which should be instituted to improve the program for current and future needs.

Attached is the Team's report identifying the findings, recommendations, and implementation plan. Based on the recommendations, we will immediately begin implementing the recommendations which will enhance the power O&M program at Reclamation's power facilities. All recommendations are to be addressed and action plans developed if not fully implemented by May 1, 1998. Your support and assistance is needed and I encourage your active participation in implementing these recommendations. It is critical that we provide an efficient, cost-effective, safe, and reliable power program.

Please contact Michael Roluti at (303) 236-1061, extension 253, if you have any further questions.

#### Attachment

cc: Director, Operations Office, Attention: W-6000 (Magnussen)  
Director, Program Analysis Office, Attention: D-5000 (Burke)  
Director, Technical Services Division, Attention: D-8000 (Cook)  
Manager, Portland OR, Attention: LCA-1000

Manager, Yakima WA, Attention: UCA-1000  
Manager, Boise ID, Attention: SRA-1000  
Manager, Grand Coulee WA, Attention: GCP-1000  
Manager, Folsom CA, Attention: CC-100  
Manager, Fresno CA, Attention: SCC-100  
Manager, Shasta Lake CA, Attention: NC-100  
Manager, Klamath Falls OR, Attention: KO-100  
Manager, Carson City NV, Attention: LO-100  
Manager, Sacramento CA, Attention: CVO-100  
Manager, Phoenix AZ, Attention: PxAO-1000  
Manager, Yuma AZ, Attention: YAO-1000  
Manager, Boulder City NV, Attention: LCDFO-1000  
Manager, Boulder City NV, Attention: GCAO-1000  
Manager, Temecula CA, Attention: SCAO-1000  
Manager, Albuquerque NM, Attention: ALB-100  
Manager, Grand Junction CO, Attention: WCAO-ND  
Manager, Provo UT, Attention: PRO-100  
Manager, Farmington NM, Attention: NIIP-100  
Manager, Salt Lake City UT, Attention: UC-600  
Manager, Billings MT, Attention: MT-100  
Manager, Grand Island NE, Attention: NK-100  
Manager, Mills WY, Attention: WY-100  
Manager, Oklahoma City OK, Attention: TX-100  
Manager, Bismarck ND, Attention: DK-100  
(w/attachment to each)

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# Commissioner's Power O&M Team Report

## *Achieving a More Effective Power O&M Program*

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### Introduction

Reclamation has become the Nation's second largest hydroelectric power producer with 58 hydroelectric powerplants having an installed capacity of more than 14 million kilowatts. Reclamation powerplants annually generate more than 42 billion kilowatt hours of hydroelectric energy, enough to meet the annual residential needs of 14 million people. Annual revenues from the sale of hydropower total nearly \$1 billion. Since 1909, when our first powerplant started operating, power revenues have repaid more than \$10 billion to the U.S. Treasury. More than 800 full-time staff support this program, mostly in the operations and maintenance (O&M) area.

Reclamation is responsible for protecting these public assets through an effective operations and maintenance program. This requires appropriately assessing O&M requirements, providing adequate funding to accomplish needed O&M activities, and employing sound O&M practices by properly trained employees.

*Incident at Flatiron Powerplant may indicate O&M process needs strengthening.*

Reclamation has undergone some significant organizational changes within the last few years. Many of the policies and practices we had relied on in the past have been sunset or no longer apply.

Additionally, we have lost significant power O&M experience to recent retirement incentives.

The explosion in late 1995 of Unit 3 at the Flatiron Powerplant raised concerns that Reclamation's O&M process needs strengthening. The report of the Corrective Action Team reviewing the specific Flatiron incident suggested some of the factors contributing to the problem at

Flatiron are indicative of problems with O&M practices throughout Reclamation. To determine if this was true and to ensure the most effective program possible, the Commissioner of Reclamation designated a Power O&M Team to:

- review the power program's O&M practices
- identify areas of critical concern program-wide
- make recommendations that will lead to improved program practices

This report presents the findings and recommendations of that Power O&M Team.

## **Background**

### **The Power O&M Team**

The Commissioner of Reclamation formed the Power O&M Team to determine if the causes of the incident at Flatiron were beyond site specific; i.e., pointed to any systemic issue Reclamation-wide, and to recommend appropriate actions to improve Reclamation's power program.

#### ***Team Members***

Jack Garner

Area Manager, Eastern Colorado Area Office

William Hagbery

Chief, Power Operations Division, Mid-Pacific Region

Bert Milano

Manager, Hydroelectric Research and Technical Services Group

Michael Roluti

Manager, Power Resources Office

## **Scope and Approach**

### **The Power O&M Team:**

- held meetings and interviewed key power personnel in the five regions to
  - discuss the Flatiron failure
  - review the conditions leading up to the failure
  - list the contributing factors
- contracted for an independent root cause analysis report of the Flatiron failure.

The Power O&M Team used feedback from personal interviews and its independent analysis to recommend actions to improve the power O&M program. The Power O&M Team also reviewed and incorporated recommendations of the National Performance Review's Power Management Laboratory (Laboratory), the Flatiron Corrective Action Team, and the consultant's Flatiron root cause analysis of the failure of Unit 3 at the Flatiron Powerplant.

## **Review**

This report has been reviewed by an executive committee consisting of the five Regional Directors; the Director, Operations Office; the Director, Program Analysis Office; and the Director, Technical Service Center.

## **Power Management Laboratory**

The Laboratory was a customer-driven, comprehensive review of Reclamation's power management practices across all aspects of the power program, including O&M practices. A process known as benchmarking was used in the Laboratory to compare Reclamation's practices with others in the hydropower industry. Benchmarking results indicated that generally the program performs well. Data showed that Reclamation is a leader in many performance categories, but there is room for improvement in some areas.

## Flatiron Investigations

On December 13, 1995, Unit 3 at the Flatiron Powerplant exploded, resulting in extensive damages to the immediate facility.

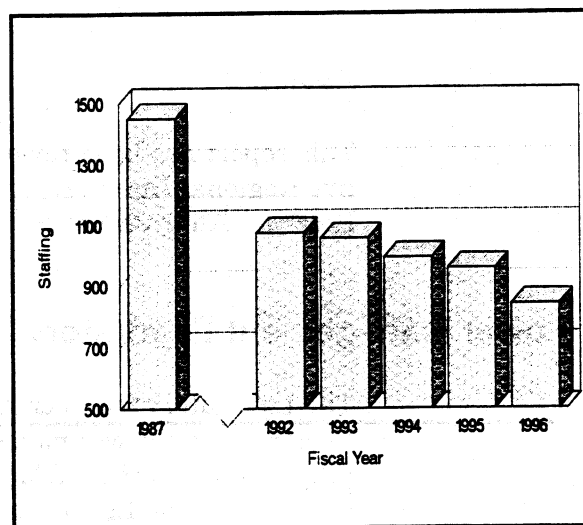
*Investigators conclude incident is attributed to several collective actions systemwide.*

In response to the incident, the Eastern Colorado Area Manager assembled a Board of Investigation and a Corrective Action Team to review events leading to the failure and to prepare reports identifying

problems and making recommendations for the Flatiron facility. These teams issued their respective reports on January 30, 1996, and May 1, 1996.

The teams concluded that "the failure (of Flatiron Pump/Generator Unit 3) cannot be attributed to a single error or group of errors, but rather can be attributed to a number of historic events and actions that collectively created the circumstances leading to the unit's catastrophic failure." The teams detailed a long history of events since 1985 they believed set the stage for the failure at Flatiron. Generally these actions and events fell into the following areas:

- Loss of experienced personnel due to organization change, reassignments, and retirements (See Figure 1)
- Inadequate training for power O&M personnel, especially those who were inexperienced
- Staff organization that lead to inadequate communications and an ineffective O&M program
- Out-of-date and under used standing operating procedures (SOPs)
- Low employee morale caused by the threat of privatization of facilities, transfers of people and responsibilities, and lack of communication



**Figure 1.—Staffing levels for Reclamation's Power Program.**

The teams recommended 42 corrective actions to be taken in response to the incident. The recommendations fell under the following broad categories:

- prioritizing maintenance practices and procedures
- having more active site management
- making organizational changes for effective interaction and use of staff
- improving operational procedures
- updating, revising, and expanding SOPs
- providing training to all appropriate personnel
- reviewing all components of the plant's equipment
- instituting regular tests and monitoring of equipment
- conducting proper peer reviews

## Findings and Recommendations

The Power O&M Team identified several findings and makes these recommendations. The findings, derived from both the Laboratory and the Power O&M Team's effort, tell us that Reclamation has generally been doing a very good job. However, there is enough evidence to indicate potential risks to the integrity of our powerplants through ineffective O&M, leading us to conclude we must continue to find ways to improve. Reclamation has highly motivated staff, with high integrity. However, at this juncture in our organization evolution, these employees are not supported by equally good business systems.

*Reclamation has generally been doing a very good job; however, we must find ways to improve.*

The Power O&M Team believes that certain circumstances leading to the Flatiron incident have relevance Reclamation-wide and represent potential problems to safely operating our facilities and

protecting our employees. These circumstances are serious enough to warrant meaningful course correction in how we conduct our power O&M

responsibilities. Failure to aggressively respond to these conditions increases the likelihood of another event with perhaps even more serious outcomes, including the potential loss of human life. As stated in the independent outside review, "It cannot be stressed enough that a fatality was avoided by luck. Luck is not an acceptable barrier to prevent loss of life."

The investigation of field practices indicates that there are underlying causes leading to the state of the power O&M program today. The Power O&M Team has reached the following general conclusions:

- The processes and procedures that resulted in the Flatiron incident are occurring elsewhere throughout Reclamation's power program.
- Recent changes to Reclamation's mission, organizational structure, and decision-making process have adversely affected power O&M practices.

To better ensure that another incident similar to Flatiron will not happen again and to maintain the highest level of productivity and safety, the Power O&M Team recommends implementing Reclamation-wide changes in the following five major areas.

- Policies and Directives Governing O&M Practices
- Power O&M Reviews, Audits, and Incident Investigations Processes
- Career Development and Certification
- Training
- Communication

Details of the Power O&M Team's findings and recommendations are presented on the following pages.

## Policies and Directives Governing Power O&M Practices

### *Finding*

**The elimination of Reclamation Instructions has left the agency without a structured mandate for its power O&M processes and procedures, including the ability to address meaningful written review of its O&M practices (see Power O&M Reviews, Audits, and Incident Investigations).**

Reclamation sunset (rather than streamlined) many of its power-related Reclamation Instructions, which were previously issued to govern activities. Reclamation Instructions provided mandatory standards and procedures for operating and maintaining Reclamation facilities.

*"Over time, both the programmatic requirements and expertise were lost."*

*Independent Analyst*

The Flatiron Board of Investigation and the Corrective Action Team found that SOPs were out-of-date and not being followed at the Flatiron Powerplant and believed this was a major factor contributing to the explosion. The Power O&M

Team found that without the Reclamation Instructions requiring up-to-date SOPs, this situation will continue to be systemic at Reclamation facilities and may contribute to a high probability for another accident.

The lack of Reclamation-wide standardized procedures for operations and maintenance has resulted in inconsistent practices. This conclusion was supported by two independent outside reviews. One stated, "Complex systems are typically maintained by a combination of programmatic requirements and personnel expertise. Over time, both the programmatic requirements and expertise were lost."

### *Recommendation*

Reclamation must develop and reestablish a system of policies and directives to serve as the foundation of its power O&M practices.

- Sunsetted Reclamation Instructions should be reviewed to determine how they relate to O&M practices and then redesigned and institutionalized.

- Each facility should review its power O&M practices and procedures and update its SOPs for all functions.
- Compliance with the Reclamation-wide policies and directives and SOPs should be incorporated into the power O&M reviews and performance reviews for all power O&M staff, facility managers, and area managers.

These recommendations will provide the framework for power O&M processes and procedures across the organization.

## Power O&M Reviews, Audits, and Incident Investigations

### *Finding*

**Many times existing and past power O&M reviews are/were inadequate to determine the O&M process being used at each power facility. Failure to have a rigorous review system has contributed to practices that led to the Flatiron incident.**

**Failure to conduct meaningful, periodic, independent reviews and incident investigations has led to inconsistent operations and maintenance practices and does not provide for proper accountability.**

Consistent with the purpose and goals of this Power O&M Team, the Team did not evaluate the O&M processes used at each individual facility due to time and resource constraints. However, the Power O&M Team believes that periodic, thorough, independent reviews should be performed regularly at each facility. Power O&M reviews are a valuable auditing tool that serve as a form of checks and balances over our maintenance practices. A review performed by facility or project staff is neither independent nor external. However, project and facility staff must be on the review team.

As part of an Administration initiative to reduce regulations and paper work, Reclamation Instructions were abolished. These instructions provided standards and procedures for operating and maintaining Reclamation facilities. They required power O&M reviews of every Reclamation facility on a regular schedule (i.e., on a 1- to 3-year

*Reclamation Instructions and reviews were the process used to ensure that Reclamation expectations were being met.*

basis). These reviews included operations, electrical, and mechanical systems and normally resulted in recommended improvements in O&M procedures or work item priorities. This review was in addition to annual inspections performed by the

operating office or water user organization operating the facility. Field personnel also provided daily or weekly surveillance of the facilities. The reviews were the process used to ensure that Reclamation expectations were being met. All of these inspections:

- helped identify O&M needs
- recommended corrective actions as needed for protection of the Federal investment
- ensured equipment and facility reliability
- obtained policy compliance and conformance to established standards
- prioritized work planning and budgeting

With the loss of Reclamation Instructions, the quality and value of many power O&M reviews has deteriorated; and the scope of the reviews needs to be revised along with the makeup of the review teams.

Facility staff and managers do perform some self-assessments; but, because of staff reductions, perceived autonomy, and loss of power expertise due to retirement, these self-assessments seem to occur infrequently. At times, this situation has resulted in inconsistent operations and maintenance practices and poses a threat to safe operations.

Meaningful self-assessment is a valuable tool to any organization conducting complex technical functions. Detailed reviews, both internal and external, provide a degree of quality assurance and contribute to the safe and efficient operation of a facility.

### ***Recommendation***

Reclamation must redesign and implement an aggressive, meaningful power operations and maintenance review program. We will:

- Redesign a system of both external and internal reviews.
- Design a protocol for power O&M reviews which include analyzing and revealing the O&M processes and their adequacy at the facility; incorporating substantial staff interviews; and review of records, staff organization, and staffing levels.
- Incorporate the process of review into the new system of Policies and Directives.
- Ensure that all affected parties are made part of the review process. Include a dispute resolution process into the review protocol.
- Consider including outside resources (external to Reclamation) on the review team.

To correct for less than adequate follow up of power O&M reviews, we will:

- Develop a system to ensure findings and recommendations are addressed and implemented.
- Prepare a formal report for the Area Manager and Regional Director listing all findings and recommendations along with a timeline for recommended activities.

Each power O&M review and incident investigation should be more like an in-depth, self audit to determine the O&M process being used at the facility.

## Career Development and Certification

### *Finding*

**The lack of a facility management career development program has adversely affected Reclamation's ability to properly plan, budget, and schedule necessary program initiatives.**

**In recent years, a substantial loss of power O&M staff has occurred, and most O&M managers and engineers are overwhelmed with non O&M work.**

Plant managers are in critical positions and are responsible for the overall operations and maintenance of a facility, as well as ensuring that operations are conducted in a manner which protects the health and safety of employees and visitors. These managers must have adequate experience and training to properly oversee the O&M of a facility. The components for successful employee growth includes appropriate education, meaningful training directed toward job responsibilities, relevant experience, and a career ladder.

If the facility manager does not have an appropriate technical background, they may not be able to identify an important issue or emergency situation. It should be noted that we are addressing technical facility managers, not area managers. It is recognized that other responsibilities of the area managers preclude them from being technically involved in the day-to-day facility management. It is appropriate that they rely on a qualified and capable facility manager and on a quality power O&M review program.

*Insufficient staffing and lack of career development inhibits O&M improvements.*

The Team found that the O&M managers and engineers also had many duties other than power O&M work. Due to insufficient staffing, many O&M duties, such as maintaining SOPs and drawings

and engineering interaction with the crafts, are not being properly performed.

The report by an independent consultant contains a section on generic implications of the Flatiron failure. In this section, the consultant addresses issues that if they existed at Flatiron, then in all probability, they exist throughout Reclamation. The first of these 10 generic issues is of particular concern.

*Clear management expectations regarding the operation and maintenance of pumping/power facilities may not exist or may not have been properly communicated. Management of these facilities requires a full understanding of the consequences of failure to complete/perform preventive maintenance and the fact that it may take some time before the failures become apparent. Personnel without the appropriate technical background are not in a position to fully justify maintenance budgets to upper management and must therefore be forced to accept smaller maintenance allowances.*

The Power O&M Team recognizes that a program is not in place within Reclamation to foster career development for the critical positions of power facility managers. This problem is complicated by an accelerated attrition rate.

Other staffing issues involving recruitment, retention, pay, and loss of experienced staff through attrition are a concern to an adequate O&M program. Area offices encounter great difficulty in hiring experienced power O&M staff unless they recruit them from other Reclamation offices.

In response to this finding, the Power O&M Team believes it is imperative that Reclamation begin a process of selecting, training, and mentoring staff for responsible positions in the power program.

### **Recommendation**

Reclamation should immediately begin designing and implementing a career development program. Major components are to:

- Recruit knowledgeable and qualified candidates for all levels of management within Reclamation's power facilities.
- Consider a process of certifying individuals qualified for power facility management positions, which will require redefining the standards necessary to qualify for these positions.

- ▶ Require minimum hours of training in management techniques of human relations, communications, budgeting, and program management.
- ▶ Incorporate O&M performance measures into the performance review process for power facility managers and their superiors.
- ▶ Provide adequate power O&M staffing. O&M staffing levels, work assignments, and hiring and retention methods need review.

## Training

### *Finding*

**Training of power O&M staff has not kept pace with advances in industry technology, which jeopardizes the integrity of facility infrastructure.**

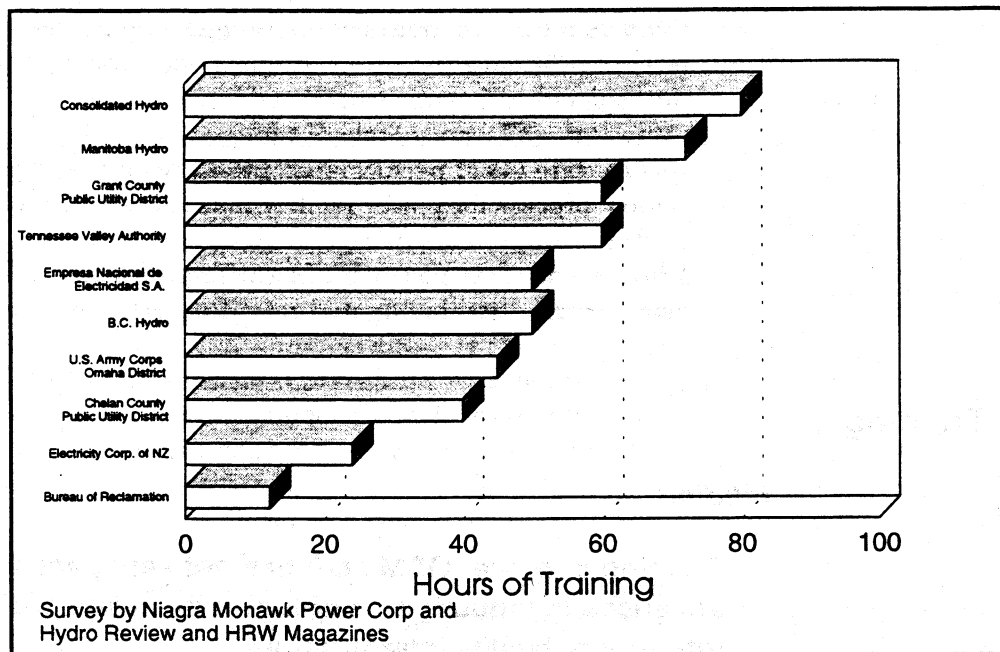
The Power O&M Team found that power employees need additional technical training, especially at craft and plant manager levels. Operating and maintaining hydropower facilities involves working with complex technical equipment and materials, and staff must be prepared to make critical decisions about this equipment, especially in emergency situations. Key to the successful operation of a hydropower facility is ensuring that an adequate level of training is provided for staff.

*The lack of training has potentially serious consequences.*

The Laboratory identified the need for training opportunities for power program staff as a pervasive problem for Reclamation. The need for training was identified as a

significant problem by many respondents of the Laboratory employee survey. Another study conducted by Hydro Review ranked Reclamation last, out of 56 participants, in the training it provided its technical staff (See Figure 2).

Employees indicated that they want more opportunities for technical training to keep pace with new technology and changing policy and procedures unique to the electric utility industry.



**Figure 2.—Major hydropower producers (training hours per year).**

The lack of training has potentially serious consequences. Without it, employees responsible for the safe, reliable, and efficient O&M of Reclamation facilities may not always have the experience to make important decisions or react to emergency situations. This was one factor in the Flatiron explosion but is not unique to the Flatiron facility.

### **Recommendation**

Reclamation should evaluate, restructure, and invigorate its training program for power program employees. Reclamation should establish policies and directives on training that encompass the following standards:

- Create training plans for each position, showing minimum requirements for proficiency for that job description.
- Provide adequate funding for technical training.
- Use experienced employees to mentor the newly hired or younger employees through the Apprenticeship Program.
- Identify minimum annual training requirements.

- ▶ Provide ongoing training to staff by in-house personnel who know the facilities, perhaps through a mentoring program.
- ▶ Provide craft positions continuous, on-the-job training.
- ▶ Provide training exercises, such as test drills on SOPs, emergency operations, and evacuation procedures. Provide operators with regular operations experience (especially at plants with Supervisory Control and Data Acquisition [SCADA]).
- ▶ Hold power O&M workshops and include formal training.
- ▶ Provide cross-training, not multitasking, for facility familiarization.
- ▶ Provide detailed power O&M training for managers so they can evaluate and recognize consequences of individual actions, decisions, incidents, and the overall facility impact and safety-related implications of their actions and decisions.
- ▶ Provide training on schematics and single-line diagrams explaining the importance of documentation, paying close attention to the accuracy of information.
- ▶ Provide ongoing training in using and applying Reclamation's Enterprise Maintenance Management System (REMMS).
- ▶ Provide Hazardous Energy Control Program (HECP) training for O&M staff on properly interpreting and applying Lockout Tagout procedures.
- ▶ Provide a Reclamation-wide testing program on HECP that can be used at each facility to certify employees.
- ▶ Provide training opportunities using modern maintenance philosophies such as reliability centered and predictive maintenance.
- ▶ Provide training on Reclamation Safety and Health Standards, Reclamation Occupational Health Handbook, and other related personnel safety topics.

It is important to have a mandatory Reclamation training program applied consistently at each facility. Further, establishing a certification responsibility in each region would eliminate the redundancy that exists with the present local application.

Training and developing competent managers and staff personnel is an important aspect that cannot be neglected.

## Communication

### *Finding*

#### **Communication among staff and flow of information throughout Reclamation facilities need improvement.**

Communication among managers, engineers, and crafts people in the power program is essential to an efficient, effective O&M program. All employees have valuable contributions to make to running a facility. The organization of staff within a facility must allow information and ideas to be valued and to flow across the facility.

Reorganizations and the overall decentralization has resulted in a loss of unity among the overall power program. In addition, a culture has emerged where employees are reluctant to share information.

Poor communication has a negative effect on employee morale as well as on organizational productivity and efficiency. Employees responding to the Laboratory survey suggested that organizational communication is a significant obstacle to performing their power-related function. In line with wanting to be more involved in decisionmaking, employees want managers to share information with them in a direct and honest manner. They want information to be centrally located and easy to find and do not want to have to go through layers of management to access program information. Employees also want more opportunities to discuss their ideas with management and to meet with other power program employees.

*Employees want managers to share information directly and honestly.*

Poor communication has a particularly negative effect on the power O&M program because of the dynamic and complex nature of the technology (see Employee

Training). Information has to be available at all levels of the organization, and employees need to be able to share effective maintenance strategies.

### **Recommendation**

Reclamation must develop, foster, and reward open communication within its power O&M program. Reclamation offices should promote and reward good communication strategies. Offices should be organized to be conducive to an efficient and effective operation and good communication. The following actions should be considered:

- ▶ Seek out and encourage training on communication techniques and benefits.
- ▶ Use electronic technology (e.g., an intranet, REMMS, etc.) to aid communication and information exchange.
- ▶ Assess current power O&M conferences to determine how often they should be held, what topics they should cover, and who should attend.
- ▶ Integrate better communication among plant managers, professional staff, and technical staff. All engineers and crafts persons should consult with each other. Plant engineers should be better integrated into plant activities and collocated with the crafts persons, where feasible.
- ▶ Create centralized repositories for O&M information that are available to all employees anytime they need them.
- ▶ Keep current and accurate written information such as the SOPs, Emergency Action Plan (EAPs), Designer's Operating Criteria (DOCs), and drawings. Provide staffing levels that will allow time for these important documents to be kept current.

It must be recognized that good communication is more of a culture than a process or system that can be mandated or regulated. Reclamation must develop an organizational culture where good communication is valued, especially between management and staff. Everyone in the power program will be responsible for working on improved communication, but the Power O&M Team feels that many of the above needs are under the direct control of power facility managers and, ultimately, good communication/management skills will be required of power facility managers.

## Implementation

The above recommendations need to be implemented as soon as possible. To accomplish these ambitious goals, Reclamation must commit to the following:

### Principles for Implementation

- Implementing these recommendations must involve **all levels** of Reclamation's organization.
- Resources to accomplish implementation for the most part must come from within Reclamation's current staff. Consideration will be given to using professional services, as needed.
- Adequate resources must be provided for implementation.

### Implementation Organization

- Regional, area, and facility offices will be responsible for implementing program changes.
- Interdisciplinary Teams consisting of representatives from the regions, area offices, facilities, Power Resources Office, and Technical Service Center will be created to:
  - Develop policies and directives
  - Redesign the Power O&M Review, Audit, and Incident Investigation Program
  - Redesign the Career Development Program and the Training Program
- The Power Resources Office will have lead responsibility for developing the policy and guidelines to implement the above recommendations. The Power Resources Office will coordinate this activity with the Technical Services Center, the regional power managers, area offices, facility managers, and power staff.
- The Power Resources Office will be appointed to coordinate and ensure the timely implementation of the recommendations. Periodic progress reports will be provided to the Commissioner's Policy Team.

## **Schedule**

Recommendations are to be addressed and policies, directives, and action plans developed, if not fully implemented, as follows:

- Develop and implement a meaningful power O&M review program by May 1998.
- Develop and implement a meaningful incident investigation program by May 1998.
- Complete Career Development Plan by May 1998.
- Complete Training Plan by May 1998.
- Complete Communication Strategy by May 1998.

## **Conclusion**

In concert with the major findings and recommendations of the NPR Laboratory, we must ensure that adequate resources are provided to accomplish implementation, which will ensure that Reclamation's power program is effectively, efficiently, and safely managed.

As we found in the NPR Laboratory, we have an excellent foundation on which to improve our power O&M program. We are doing quite well in many areas, but opportunities for improvement do exist. We must aggressively implement the above recommendations as part of our power program responsibilities. We will continually reassess and improve the power O&M program.